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Timothy N. Trop
TROP, PRUNER & HU, P.C.
8554 KATY FWY, STE. 100
HOUSTON, TX 77024-1805

EXAMINER

LIANG, REGINA

ART UNIT	PAPER NUMBER
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2674

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 11

Application Number: 09/904,246
Filing Date: July 12, 2001
Appellant(s): PALANISAMY, PONNUSAMY

Timothy N. Trop
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/23/04.

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(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is incorrect because appellant has included extraneous material. As the specification failed to provide a summary of invention, the abstract is sufficient as a summary of invention and the Board's attention is respectfully directed to the abstract for a summary of invention.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The rejection of claims 1-10 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

6,265,986	Oka et al	7-2001
6,274,391	Wachtler et al	8-2001
2002/0054037	Kawano et al	5-2002 (filed 7/5/01)
5,253,091,	Kimura	10-1993

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-5 are rejected under 35 U.S.C. Oka et al (US. PAT. NO. 6,265,986 hereinafter Oka) in view of Wachtler et al (US. PAT. NO. 6,274,391).

As to claim 1, Fig. 1-2 of Oka discloses a display comprising a circuit (driving circuit part 23), a display panel (1) electrically coupled to the circuit board in face-to-face abutment substantially along a plane, an electrical connection including a first contact (driving device-side electrode terminals 22) on the circuit, a second contact (display device-side electrode terminals 13) on the display panel. Oka does not disclose the electrical connection including a conductor coupling the first and second contacts and extending generally along the plane. However, Figs. 6 and 7 of Wachtler teaches an electrical connection between a semiconductor device and the printed circuit board including a first contact (pad) on circuit board, a second contact (pad 20) on the semiconductor device, and a conductor (solder ball 22) coupling the first and second contacts and extending generally along the plane (col. 7, line 66 to col. 8, line 4) to provide direct

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electrical and mechanical attachment means to other system hardware (e.g., col. 6, lines 57-60). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electrical connection of Oka to have a first and second contacts and a conductor as taught by Wachtler so as to provide direct electrical and mechanical attachment means to the display device for the elimination of wire bonds or TAB attachment solder joints to result in a higher packaged device reliability and potentially lower cost because of reduction in manufacturing and assembly process steps.

As to claims 2, 3, Wachtler teaches the electrical connection is a surface mount connection including solder balls (22) and the solder balls couple to the contact pads (20) on one of the display panel or circuit boards.

As to claim 4, col. 6, line 60 to col. 7, line 28 of Oka teaches the display panel including column electrodes (see Figs. 5, 6, substrate lines 33 or 34 on substrate 31 or 32) and a conductor including a metallization coupled to the second contact (13) on the display panel, and extending to a third contact (a conductor onto the through-holes which contacts a column electrode).

As to claim 5, Oka teaches the column electrode is formed at least in part of ITO (col. 5, lines 43-48).

Claims 6, 7, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oka and Wachtler as applied to claims 5 and 1 above, and further in view of Kawano et al (US. Pub. No. 2002/0054037 hereinafter Kawano).

As to claim 6, Oka as modified by Wachtler does not disclose the display including a plurality of redundant third contacts to the column electrode. However, Kawano teaches the

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display panel including a plurality of redundant wires goes through the contact holes (42) to contacts the column electrodes (see Figs. 1-3 and page 4, section [0059]). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display panel of Oka as modified by Wachtler to include a plurality of redundant third contacts to the column electrode as taught by Kawano so as to prevent short-circuiting between pixel electrodes.

As to claim 7, Figs. 11(A) to 11(c) of Oka teaches a plurality of second contacts aligned in a column parallel to the column electrode.

As to claim 10, Kawano teaches the contact pads (41) being placed in the pixel area and being aligned in the space between two adjacent column electrode (signal lines), extending generally parallel to the length of the column electrodes.

Claims 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oka, Wachtler and Kawano as applied to claim 7 above, and further in view of Kimura et al (US. PAT. NO. 5,253,091 hereinafter Kimura).

As to claim 8, Oka as modified by Wachtler and Kawano does not disclose providing contacts to the column electrodes at every other pixel. However, Figs. 4, 6-8 of Kimura teaches pixels in each column being alternately connected respectively to one column conductor. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Oka as modified by Wachtler and Kawano to have the contacts to column electrodes at every other pixel as taught by Kimura so as to provide a flicker-free display without increasing electric power consumption.

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As to claim 9, Fig. 6 of Oka teaches the electrical connections between the row or column lines and the display device-side electrode terminals 13 are connected through the through-holes 38 or 39 formed in the row and column substrates, therefore, Oka teaches the edge of the display panel in Fig. 6 is free of electrical connections.

(11) *Response to Argument*

Appellant's argument regarding claim 1 on page 7 are not persuasive. First, appellant's allegation "the claim calls for an offset conductor which allows elements that are not aligned with one another to be connected" is not persuasive since appellant is reading limitation into the claim and such limitation is not even in the specification. Claim 1 merely requires an electrical connection including a first contact on a circuit board, a second contact on a display panel, a conductor coupling the first and second contacts and extending generally along a plane. Oka discloses a display device comprising a circuit board (2) having a first contact (22), a display panel (1) having a second contact (13). Figs. 6 and 7 of Wachtler teaches an electrical connection between a semiconductor device and a circuit board including a first contact on the circuit board, a second contact on the semiconductor device. Wachtler also teaches the electrical connection including a conductor (solder ball 22) coupling the first and second contacts and extending generally along the plane to provide direct electrical and mechanical attachment means to other system hardware. Fig. 6 of Wachtler clearly shows the contacts and solder balls are provided extending along the whole plane of the device. Therefore, the combination of Oka and Wachtler teaches the claimed limitation as set forth in the rejection above. Appellant's remarks

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that the "claim calls for an offset conductor which allows elements that are not aligned with one another to be connected" is not in the claim and the specification, and misleading.

Appellant's remarks that "in Figure 2 of the present application, the conductors 32 extend along the plane of interface, allowing connections to be offset" are not persuasive. As disclosed in the specification, the numeral 32 is a column line contact, and as evidenced by claim 2 of appellant's application, the conductor as claimed is solder balls (14) which are shown in Fig. 1 of the appellant's application, and see page 4, lines 16-24 for example. Therefore, appellant's remarks are not persuasive.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,




Regina Liang
Primary Examiner
Art Unit 2674

RL

March 30, 2004

Conferees

Richard Hjerpe (SPE, AU 2674) 

Steve Saras (SPE, AU 2675) 

Timothy N. Trop
TROP, PRUNER & HU, P.C.
8554 KATY FWY, STE. 100
HOUSTON, TX 77024-1805